

War, Changes, and Resource Management in Bulgaria between the 800s and the 830s

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Abstract: *The article examines two political, social, and economic processes in Bulgaria that occurred and developed between the 800s and the 830s – the expansion of the state and the ramifications of voluntary and forced migration of population, as well as the emergence of new economic and production activities due to this influx. For their interpretation, the author proposes an interdisciplinary framework that synthesises elements from the theories of the new institutional economy, historical institutionalism and technological change. The first process involves several voluntary and forced migrations of population from the Byzantine themes of Thrace and Macedonia as a result of Byzantine-Bulgarian war during the reigns of Krum and Omurtag. This process ignited the second process of economic, institutional, and technological transfer from the Byzantine Empire to Bulgaria and its subsequent transformation. The article delves into one aspect of this change. Namely, the restoration of the water-conduits and installation of a new water supply system of the palace and the internal city of Pliska. The author surveys the written, archaeological, and epigraphic evidence for the production of new pipes and the management of water resources in mediaeval Bulgaria. The water supply system in the Pliska area was in ruins since the local population abandoned the area in Late Antiquity. Bulgarians partially restored it in the first half of the ninth century. The author argues that the forced migration of the skilled population, resulting from Krum's and Omurtag's campaigns, facilitated the institutional change in Bulgarian society and the technological transfer from the Byzantine Empire to its northern neighbour and rival for Balkan supremacy.*

Keywords: *Mediaeval Bulgaria, institutional change, technological transfer, Byzantine, Byzantine-Bulgarian war*

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The present study¹ aims to contribute to the re-examination of the profound political, economic and social changes which the Bulgarian state and society underwent

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between c. 800s and c.830s. For this purpose, we will propose an interdisciplinary framework to survey processes of social, political and economic transformations in the mediaeval period. The article will apply it to the case-study on the water-supply management of Pliska in this period.

The text has the following organisation. The first section provides a brief overview of the accumulated historiography. Next follows a longer segment on the interdisciplinary framework that will guide this research. The third section epitomises the written evidence on this subject. The next one delves into the institutional changes that emerged in Bulgaria between the 800s and the 830s. The fifth paragraph describes the archaeological and epigraphic sources related to the management of water resources and the water supply system of Pliska in the same period. A concise historical reconstruction follows, and the final section presents the main concluding points.

1. Historiographical synopsis

The studies of Nikolai Prodanov (1993, 1996) and Roumen Daskalov (2018) facilitate the categorisation of Bulgarian historiography according to the employed theoretical frameworks. Hence, one finds the Romantic school dominating in the eighteenth and the first half of the nineteenth century which labeled rulers as strong or weak. Then followed the Positivists such as Marin Drinov, Fedor Uspenski, Konstantin Jireček, Vasil Zlatarski, Petar Mutafchiev, Peter Nikov, Ivan Duichev, etc, who tried to bridge the gaps in history by applying a series of methods – epistemological, logical, or considering the results of several auxiliary historical studies – to construct a coherent narrative. Following the WWII and the import of historical determinism and materialism, many scholars applied this framework to present a cause-and-effect narrative of the historical development of the Bulgarian state and its people. Representatives of this theoretical framework included Petar Petrov, Dimitar Angelov, Strashimir Lishev, Genady Litavrin, and others. Following the collapse of Communism, many scholars turned back to positivism and other dialectic methods. Although the list is not conclusive due to space constraints, it may include the names of Vasilka Tapkova-Zaimova, Vasil Giuzelev, and Iordan Andreev, among others. Ivan Bozhilov applied the theoretical framework of the French *Annales* school and its concept of historical *longue durée* to Bulgarian mediaeval history. The archaeological research conducted over the last fifty years by Stancho Stanchev, Rasho Rashev, Stanislav Stanilov, Totio Totev, and Pavel Georgiev, among others, added to the puzzle of mediaeval Bulgarian history.

Foreign scholars such as Steven Runciman, Robert Browning, George Ostrogorsky, John Fine, Dimitri Obolensky, Jonathan Shepard, Joachim Henning, Florin Curta, and Panos Sophoulis, among others, dealt with aspects of the ninth-century Bulgarian history. Nikolay Kanev provides the latest complete review of various points on this issue (Kanev, 2021, pp. 83–107).

2. Interdisciplinary framework

The interpretation of historical, archaeological, and epigraphic evidence will be guided later herein by interdisciplinary synthesis of theories of the new institutional economics (NIE), historical institutionalism, and technological transfer.

The NIE (since the 1960s) and the historical institutionalism (since the 1990s) have never been applied as analytical frameworks upon the written and material sources about Bulgarian mediaeval history for a variety of reasons. The NIE attempts to research human economic development by emphasising the role of institutions, which are defined as the social and legal norms and rules that shape and forge their economic activities. In part of its approach, the NIE merges facets of the theoretical frameworks of institutional economics and neoclassical economics, such as human rationality or optimisation and maximisation strategies. Unlike other branches of economic science, the NIE recognises that humans possess cognitive limitations, take decisions while lacking complete information, and experience difficulties in following through and enforcing written and verbal agreements. Hence, human society invents new rules, i.e., institutions, to deal with the issue of transaction costs. The NIE accepts that the state is not neutral in the economy, neither that there are zero transaction costs, nor that the leading actors have inflexible preferences. In Douglass North's opinion, the differences between institutions and organisations lie in the fact that the former are composed of formal legal rules and informal social norms, which regulate individual behaviour and structure social interactions. As a result, people forge institutional frameworks in their everyday interactions. The organisations, on the other hand, are created and composed of groups of people who structure governance arrangements to coordinate their group action against other groups. To enhance their chance of survival, human organisations strive to acquire new skill sets that provide the highest return to their group's aims. While North defines institutions in this way, he points out that *they provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation, or decline* (North, 1992, pp. 5–12).

Bulgarian mediaeval studies presuppose that personal dependencies and in-kind fiscal relations govern the society in this period. Even if these concepts are not fully adhered to presently, the NIE could not be directly applied to the mediaeval period due to its emphasis on the transaction costs, market rationality and property rights. However, it serves as a heuristic analogy to the process of state/society/group' adaptation to new institutional or technological shocks and changes.

Historical institutionalism, which partly stemmed from the NIE, is the principal theoretical framework that is applied to the present study. It emphasises the timing, sequences, and *path dependence* that forge institutions, which are shaping the social, political, and economic behaviour and lead to their change. The scholars working within this framework adopt a view that institutions emerged as a result of conflict and

long-lasting contest or persistent warfare. The notion of *path dependence* implies that institutions exert considerable stability and rigidity. Another facet of this theory is that the sequence and order of exogenous factors – such as interstate competition, warfare, or economic crises that cause various supply or demand shocks – ultimately reflect upon the results over time. Historical institutionalists consider major social and political shocks, such as wars and revolutions, to be pivotal factors that lead to or contribute to institutional change, as they create crossing points that imprint path dependencies on society (Thelen, 2002, pp. 208–240; Steinmo, 2008, pp. 118–138; Mahoney & Thelen, 2009, pp. 15–18). To some extent, the historical institutionalism shares theoretical properties that relate it to the concepts of *longue durée* and *macrohistory*.

Technological changes may also provoke institutional changes, as evidenced by the eighteenth-century Industrial Revolution. Technological advancements can be endogenous, as summarised recently by Akcigit et al. (2018), or exogenous, as examined lately by Oliveira et al. (2025). The lessons of history exemplify three more avenues that facilitate technological changes: country's intelligence agencies which spy both friends and foes; programs stimulating labour mobility of highly skilled workers, which several countries have implemented from the nineteenth to twenty-first century; and forced migration of skilled workers, such as the scholars hunted by the Allied forces in the final stages of the WWII.

3. Historical Evidence

The written sources for this period of Bulgarian-Byzantine warfare which commenced at some point early in the 800s and subsequent enforced technological exchange are limited to the works of Theophanes, George the Monk, and their continuators, known by various pseudonyms.

Theophanes reports that the first mass Byzantine migration to Bulgaria occurred following the Bulgarian seizure of Serdica in 809. It was a reaction to the fiscal policy of Emperor Nikephoros I (802–811) and the indifference of the Byzantine government to security of the citizens of Serdica. The enforced migrations were recorded in the later years of Krum's reign (796/803–814), following several successive military campaigns within the Byzantine-Bulgarian war, which started prior to 809. The citizens of Debelto in 812, Mesembria in 813, and Adrianople in 814 were relocated north of the Danube (Mango & Scott 1997, pp. 663–686). The Bulgarian army managed to relocate most, if not the entire, population of the Thracian theme, according to *Scriptor Incertus* (Dujčev, 1965, pp. 205–254). The source reports of captured 50,000 men, women, and children in 813/14. It appears that the abduction of the population continued during the last year of Krum's reign and the early years of Omurtag's reign (814–831), until the signing of the Bulgarian – Byzantine treaty between the latter and Emperor Leo V (813–820). Pseudo-Symeon's version of the story of the Bulgarian capture of the

Byzantine population and its resettlement across the river Danube is perhaps the most coherent of all narrative sources at hand (Theophanes continuatus, 1838, pp. 615–617).

Omurtag took advantage of Thomas the Slav's revolt and interfered in Byzantine affairs by supporting the ruling Emperor Michael II (820–829). Following the Bulgarian victory over the rebel forces, the Bulgarians captured many prisoners of war and transferred them to Bulgaria in 822. (Theophanes continuatus 1838, pp. 66).

According to Leo Grammaticus, the Byzantine settlers of the theme of Macedonia had been semi-independent and replicated the governance structure of their theme. Hence, the son of their former *strategos* held the power of representation among them. They may have also reproduced the thematic hierarchy. Later, part of these settlers managed to return to Adrianople with Byzantine help (Leonis Grammatici, 1842, pp. 231–233).

4. Institutional changes in Bulgarian society between the 800s and the 830s

The Byzantine political and other types of refugees to Bulgaria, as well as the enforced mass relocation of the Byzantine population to Bulgarian territory, added to several institutional changes, some of which are already described in historiography. Veselin Beshevliev (1992, pp. 75–77) identified *θρεπτός ἄνθρωπος* in Bulgarian epigraphic sources with Byzantine titles such as *οἰκεῖοι ἄνθρωποι / βασιλικοὶ ἄνθρωποι*. Tsvetelin Stepanov (2001, pp. 1–19) argued that the titles of Bulgarian rulers from this period reveal particular Byzantine influence in their development. Zhivko Zhekov (2007, pp. 254–305) pointed out that the Bulgarians established a military-administrative system of *comitatus* in response to the Byzantine thematic system introduced in the European provinces shortly before or during the reign of Krum. One may also hypothesise that Bulgarian state has also borrowed certain tax practices from the Byzantine Empire to levy duties on the newly relocated population. In the eighth and ninth centuries, the Byzantine Empire collected a significant portion of its taxes not in money, but in kind or labour from the tax-obliged population. It seems more plausible to infer that instead of the literary application of the Marxist concept of exploitation of labour classes and simultaneous class-stratification of society in the first half of the ninth century in *History of Bulgaria* (1981, pp. 161–207) and by Petar Dobrev (1986, pp. 52–63), a transfer of social and administrative practices occurred with the arrival of the new population. Mirela Ivanova (2019) dated all epigraphic evidence in the first half of the ninth century, while Jonathan Shepard conjectured that native Greeks might have cut the inscriptions, as the language is not formal literary Greek (Shepard 1995, p. 238). Still, one has to consider that the relocated Greek-speaking communities were the primary suppliers of literate sculptors and stone masons. Even if they could not write in formal literary Greek, the artisans possessed knowledge of Greek sufficient to cut and carve the letters onto the stone columns.

5. The management of water supply in the archaeological and epigraphic evidence

The available epigraphic evidence from the 830s consists of an inscription regarding the building and installation of a new water conduit (aqueduct) or a fountain (ἀναβρυτήριο) in Pliska by Isbul, kavkhan of the Bulgarian rulers Omurtag, Malamir, and Presian, at his own expense. Once installed, in the best traditions of Antiquity, Isbul donated it to the ruler Malamir (831–836) whose reign serves to date the inscription. In return, Malamir offered a great feast to Pliska's population and presented gifts to the nobility (Beshevliev 1992, pp. 225–226). The extensive research of Pavel Georgiev (1992, pp. 77–104) on water-supply and sewage system of Pliska in the ninth century demonstrate explicitly that Bulgarians made a rapid transformation from a nomad or semi-nomad society – if one insists on this theoretical framework – with semi-sunken houses in the seventh – eight centuries to a population with surprising skills in water collection and its urban delivery, distribution and drainage. The excavator described some thirty-five clay and lead water-delivering pipes and thirty-three sewage and draining channels during the four stages of Pliska's urban development. How did this transformation happen? Did Bulgarians reuse pipes from the Roman cities in their territories or mould new ones? Were there any industrial centres for the production of clay pipes? Given that some of the found water-delivering pipes in Pliska are made of lead, where or what were the sources of this metal? Moreover, how did Bulgarians manage to acquire new skill sets to rework, bend, and shape lead? All these questions require a more extensive and diversified research in clay pipe technology, clay content, moulding techniques, etc.

The installation of an aqueduct or public fountain in Pliska – depending on the interpretation of the used Greek term – is an example of technological transfer from the Byzantine Empire to Bulgaria. The water capping, selection of the right clay, its purification and processing, moulding various types, lengths, and diameters of pipes, their firing, pipes levelling and integration, their connection with lead pipes or with private houses, public buildings, baths and fountains require highly specialised skills which Bulgarians could not have developed in a short period. Neither written sources nor archaeological evidence illuminates researchers on the presence of such groups or settlements within the Bulgarian territories. The only fully excavated Bulgarian village settled in the ninth to tenth centuries, Durankulak, does not testify to their superior skills in this area, as archaeologists did not find any water and sewage system there (Durankulak 1989). Hence, we may propose that Byzantine craftsmen constructed Pliska's water-supply and drainage system.

6. A historical reconstruction

Byzantinists continue with their attempts to ascertain the locations of various industrial centres and the economic dynamics of their production and operation

(Laiou et al 2002). For the present article, we may resort to Theophanes' work, which informs us that due to the drought in Constantinople in the summer of 766, Emperor Constantine V (741–775) had to restore the aqueduct of Valentinian (also known as the aqueduct of Valens), which the Avars had destroyed in the 620s. The emperor employed construction specialists from various regions of the Byzantine empire, including 1,000 stone masons and 200 plasterers from Asia and Pontus, 500 clay workers from Hellas and the Archipelago, and 5,000 labourers and 200 brickmakers from Thrace (Mango & Scott 1997, p. 608). One may safely infer that once Krum and Omurtag began relocating people from themes of Thrace and Macedonia (with centre – the city of Adrianople) to Bulgaria, they also got hold of many artisans and craftsmen, forcing them to resettle near the Danube. Some of them, most likely, were clay brick-, tile- and pipe-makers.

The archaeological excavations of Totyo Totev in Vinitza in the 1960s and 1970s revealed that this site was one of the industrial centres of the ninth-century Bulgaria with fifteen discovered ovens/kilns for multiple use and production. Vinitza mainly produced bricks and roof tiles. One of the kilns was used for clay pipes. Still, the extent of this production, as well as whether all ovens were excavated, is unclear, as Totev conducted the excavations after the use of heavy machinery in the construction of an artificial dam. Most likely, the pipes of this production centre served in the construction of Preslav in the second half of the ninth and early tenth centuries (Totev 1973). One may conjecture with a high degree of certainty that the local producers borrowed this set of new skills from relocated Byzantine workers. The archaeologists have further to discover the production site (s) of the clay pipes that were installed in the water-supply system of Pliska. Since the water conduits runs from the north direction, as Pavel Georgiev's surveys ascertained, one may only hypothesise that the production centre is also north of Pliska (Georgiev 1992, pp. 92–93).

7. Conclusions

The present study constructed an interdisciplinary framework to analyse data from written accounts and archaeological sources for the first half of the ninth century. Unlike the modern economic theories of institutional and technological changes, one may conjecture with a limited degree of certainty how similar changes occurred in mediaeval period due to indirect written or measurable evidence.

The article reinterprets the relocation of the Byzantine population captured following several successful Bulgarian military campaigns within the ongoing Bulgarian-Byzantine war between c. 807 (?)–815(?) as the main source of series of changes in Bulgarian society and economy. Among the population of Byzantine provinces of Thrace and Macedonia were found many skilled brick, tile, and pipe makers who, most likely, worked on the construction of Bulgarian cluster of settlements presently known as the capital or camp of Pliska. We propose that they transferred and

applied their skills in pipes production and installation of the water and sewage system of Pliska. In this way, one may observe a significant progress achieved from the nomad mode of living to the archaeologically attested ninth-century urban developments in Bulgaria. The state began to utilise water resources effectively for both public and private consumption. The availability of water allowed the development of various industries which are attested for the second part of the ninth and the tenth centuries.

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